

**Domestic Aviation in Japan:  
Responding to Market Forces  
Amid Regulatory Constraints**

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# DOMESTIC AVIATION IN JAPAN: RESPONDING TO MARKET FORCES AMID REGULATORY CONSTRAINTS

Arthur J. Alexander

## *Abstract*

*Japan's airline industry appears to be thoroughly regulated by law and ministerial directive. In actual practice, however, there is much less regulation than first meets the eye and more competition than often is acknowledged. Laws not only restrict severely the entry of new carriers but also the expansion of service by existing carriers. Yet, at least two competitors vie for traffic on the 59 highest-volume routes.*

*Despite a formally regulated fare structure, market forces strongly influence domestic passenger fares. Japanese carriers must contend for international business against the world's lowest-cost airlines by offering competing fares. In domestic cargo markets, too, the airlines compete with one another and with other modes of transportation — mainly railroads. Among international air shippers, the 40 or so foreign carriers flying into Japan offer substantial price and service competition; consequently, the price of cargo shipments results from negotiations between shippers and the airlines.*

*Thus, while not nearly the open aviation market that prevails in the United States, the air services industry in Japan is more competitive than a surface reading of the regulatory framework might lead one to expect. The formal level of regulation has been reduced slowly over the past 10 years, partly in response to*

*global trends in airline deregulation. In addition, aviation technology and the development of domestic demand have had major effects on the process. The main objective barrier to thorough deregulation — at least in the minds of most Japanese industry participants, government and established companies — is serious capacity constraints at Japan's major airports.*

## **Postwar Developments Regarding Aviation And Its Regulation**

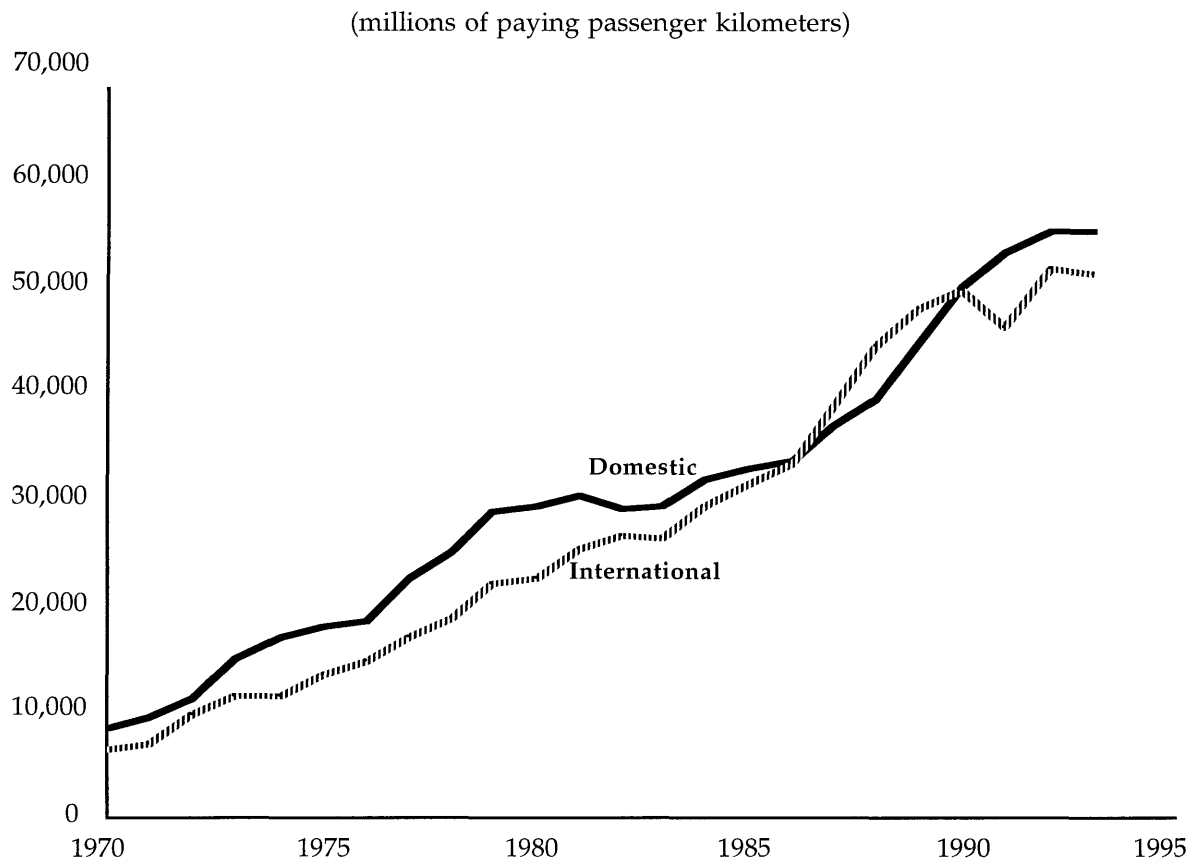
Japan's Civil Aeronautics Law requires that airline companies obtain government licenses to enter the market. This gives the Ministry of Transport considerable control over market participants. Capacity constraints at major airports also provide several avenues for government authority and power. Not only is the government instrumental in deciding on new airport construction and providing funding, but MOT allocates the scarce takeoff and landing slots at capacity-constrained airports. In the past direct government influence extended to the partial ownership of the nation's principal airline.

Japan Airlines Co., Ltd. was established as a private company in 1951. Two years later the government became the controlling owner with its contribution of 50 percent of the company's capital. JAL entered international air transport in 1954 as Japan's national flag carrier — the term used at the time to denote a country's designated international airline. In the 1950s most other countries' flag carriers were also government-owned — and many still are, despite considerable privatization in recent years. While JAL had a monopoly on international routes, several companies competed in the small, chaotic domestic market in this early postwar period. Two of the biggest merged in 1957 to form All Nippon Airways Co., Ltd.

This struggling but growing domestic market underwent profound adjustment with the adoption in 1970 of a cabinet resolution, Concerning Airline Operations. This resolution, often called the country's aviation constitution, created a segmented industrial structure built around three companies: JAL, ANA and a third — Toa Domestic Airline Co., Ltd. — formed under official

direction through the merger of two smaller companies. The merger as well as the resulting three-firm structure occurred in response to “strong political pressure from particular corporate groups,”<sup>1</sup> according to industry analysts.

Figure 1: **Growth of Japanese Domestic and International Aviation, 1970-93**



Source: Management and Coordination Agency, Statistics Bureau, *Japan Statistical Yearbook*.

The segmentation plan assigned JAL responsibility for international and domestic trunk routes. ANA was given domestic trunk routes, local routes and some short-distance international charter flights. TDA received local routes and a portion of domestic trunks. Trunk routes were defined as those connecting Tokyo, Osaka, Sapporo and Fukuoka.

<sup>1</sup>Hirota Yamauchi and Hideki Murakami, “Air Transport in Japan: Policy Changes and its Evaluation,” in Economic Planning Agency, *The Economic Analysis (Keizai Bunseki): International Comparison of Privatization and Deregulation among the USA, the UK and Japan*, III: Airline and Trucking, No. 143, December 1995, p. 88.

The 1970s subsequently saw rapid, double-digit growth in both the domestic and the international airline industry segments (see Figure 1). Trunk lines in particular experienced the most vigorous development, as Japan outgrew its rural roots and the bulk of the population flowed into major urban centers. This unbalanced growth, combined with a rigid, regulated fare system based on distance, produced low costs and high profits on major routes; trunk route profits, in turn, subsidized higher costs on less-used, short-haul routes.

Late in the 1970s the United States deregulated its domestic aviation industry and urged similar actions elsewhere. Several U.S. policies targeted the international sector in an attempt to break down a cartelized market structure and the price supports implemented elsewhere in the world's air services community. In negotiations over bilateral agreements, the form of regulation that governs international aviation relations among all countries, the United States sought more liberal entry and pricing arrangements; its eventual aim was an international "open skies" market.<sup>2</sup>

Japan's aviation policymakers in the early 1980s recognized that the deregulatory wave ultimately would break over their own shores. The deluge, however, was preceded by developments that featured sharp increases in the demand for international cargo flights and the introduction of wide-body Boeing 747 aircraft, which made an enlarged cargo business technically and economically feasible. The first break in market segmentation in the international cargo arena came in 1983 when MOT granted a license to Nippon Cargo Airlines Co., Ltd., a venture formed by ANA and six major Japanese shipping companies. The deregulatory wave hit with greater force in 1985 when Japan and the United States entered into a new round of negotiations over air cargo. The agreement that emerged was based on the principle of "balanced expansion." It allowed three new carriers from each country to launch transpacific service. Faced with the potential problem of new entrants in the industry, MOT turned to a ministerial advisory committee, which recommended increased competition in both the international and the domestic market. The suggested framework

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<sup>2</sup>The U.S. policy of open skies is not as open as its proponents usually assert. Foreign airlines are prohibited by U.S. law from picking up and delivering passengers or cargo within the United States. This practice, called cabotage, is banned by most countries, but it creates sharp asymmetries of geography and market access when the large, continental American market (closed to foreigners) is compared with the smaller countries of the rest of the world, where intercountry traffic rather than cabotage is the U.S. goal. Foreign ownership in part or in whole could be a way of functionally breaking the cabotage barrier, but U.S. law places restraints on the share of foreign ownership of American carriers. In addition, numerous buy America laws require that certain kinds of traffic be carried by U.S. carriers. Other countries, subjected to U.S. pressure to open up internationally, often complain bitterly about the asymmetry of geography and law that American open skies proponents typically ignore.

included multiple carriers on international routes, new entrants on routes serving domestic city pairs (as warranted by the volume of traffic) and the privatization of JAL.<sup>3</sup>

On domestic competition policy the advisory panel stated, "American-style deregulation does not suit the actual circumstances of Japan" because of the physical limitations of Tokyo's Haneda Airport and Osaka's international airport at Itami. The committee suggested in its report abandoning the trunk versus local distinction, introducing instead "double and triple tracking" (two or three carriers servicing a particular route) on the basis of passenger volume. Since capacity constraints at the busiest airports continued to be a problem, infrastructure expansion became a top priority.

Meanwhile, MOT continued to allocate routes and the required takeoff and landing slots to new carriers on high-volume city pairs. In this manner the ministry retained enormous power over the expansion of domestic airlines and, by extension, their business success.

With the introduction of international and domestic competition starting in the second half of the 1980s, Japan's regulatory regime started to come unglued. Liberalization has developed in a direction opposite to the one that accompanies the establishment of a structure of regulation. Often, the attempt to control economic behavior requires a succession of additional controls as economic actors figure out ways to avoid the impact of regulation. Over a period of years the resulting regulatory web contains a rococo pattern of remarkably fine-stitched directives.<sup>4</sup> If the bindings are loosened, unraveling occurs in a similar pattern, as old rules become inconsistent with new objectives. Japan's regulatory experience has followed these tendencies.

## Industry Structure

Initially the thresholds for determining whether routes could be triple and double tracked involved whether two points generated service for 1 million passengers a year and 700,000

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<sup>3</sup>These points are described by Yamauchi and Murakami, *op. cit.*, pp. 89-90.

<sup>4</sup>Americans may recall the "sandwich wars" fought by U.S. airlines during the days of price regulation, as the carriers competed for passengers by offering more and more elaborate food service. The Civil Aeronautics Board, then the governing body of the industry, finally decreed that only sandwiches could be served on flights of certain duration. The companies reacted by producing prodigious sandwiches, which, in turn, required definitions of the kinds of sandwich that were allowed.

passengers a year, respectively. In 1992 the relevant limits were loosened to 700,000 and 400,000. Between 1986 and today the number of routes on which three carriers compete has expanded to 22; double-tracking routes have increased to 37. These busy, contested arteries handle three-quarters of all domestic passenger traffic. Whereas ANA had been the sole service provider on 60 percent of its domestic routes before 1986, it now competes against other carriers on 54 percent of its city pairs. Even more important, 80 percent of ANA's passengers can now select another carrier. Since JAL flies mainly to larger cities, it faces stiff competition on most of its routes. The more local the airline, the more likely it is to have monopoly rights. Air Nippon Co., Ltd. (a subsidiary of ANA operating shorter flights) is the sole carrier, for example, on over 85 percent of its routes.

The structure of Japan's aviation market today is more complex than the carefully segmented pre-1986 one. Depending on how one counts, 12 or more companies provide regular, scheduled passenger service. However, the top three airlines — ANA, JAL and Japan Air System Co., Ltd. (the name TDA adopted in the 1980s) — carry more than 90 percent of domestic and international passengers. Air Nippon and Japan Air Commuter Co., Ltd., a JAS subsidiary, operate short-haul routes with smaller aircraft and higher costs. Both of the parent companies have shifted less-profitable, less-traveled routes to these subsidiaries. Air Nippon, in turn, has hived off some of its commuter runs to Air Hokkaido Co., Ltd. Table 1 shows the number of domestic routes and flights operated by the companies listed in the September 1995 airline schedule guide.

**Table 1: Domestic Routes, Daily Flights and Passengers Carried by Japanese Airlines\***

<u>Airline</u>	<u>Number of Routes</u>	<u>Number of Flights</u>	<u>Number of Passengers</u>
All Nippon Airways Co., Ltd. (ANA)	90	260	34,098,100
Japan Airlines Co., Ltd. (JAL)	51	116	17,067,900
Japan Air System Co., Ltd. (JAS)	85	119	15,475,749
Air Nippon Co., Ltd. (ANK); ANA subsidiary	41	96	4,100,000
Japan Transocean Air Co., Ltd. (JTA); JAL subsidiary; Okinawa flights	13	41	2,258,600
Japan Air Commuter Co., Ltd. (JAC); JAS subsidiary	30	79	292,000
Ryuku Air Commuter Co., Ltd. (RAC); Okinawa area	7	17	110,500
J-AIR; commuter	7	16	73,700
Nagasaki Airways Co., Ltd. (NAW); commuter	5	14	42,000
Central Japan Airline Service (NAL); commuter	5	11	40,200
Air Hokkaido Co., Ltd. (ADK); commuter	3	8	18,800

\*Routes and flights as of September 1995; passengers for 1994.

Source: JTB Jikokuhyo (Japan Travel Bureau), *Schedules*, September 1995.

## Air Fares

The formal structure of airfares in Japan is undergoing partial liberalization, but both the new system (effective April 1, 1996, and discussed in the final section) and the one from which it evolved are based on standardized costs and profit rates. Published tariffs, as approved by MOT, are built on the notion of average costs plus a “reasonable profit.” Costs comprise both a fixed portion and a variable component based on distance. Fares of a given distance are supposed to be the same, regardless of the number of passengers or other factors that may influence costs or demand. One major reason for this approach is that politicians from smaller towns did not want their constituents disadvantaged by having to pay higher fares than people in urbanized areas. An earlier scheme that favored routes within the more populous southern part of the main island of Honshu was revised explicitly in 1990 into an unbiased system aimed at removing such population- and geographic-based differences.

MOT’s standard tariff schedule shows that the full-fare formula is ¥9,500 (\$95 at ¥100=\$1.00) for the fixed-cost portion plus ¥17 (17 cents) per kilometer based on distance. According to this formula, a one-way ticket for the 403 kilometers from Tokyo’s Haneda airport to Osaka’s Itami airport would be ¥16,350 (\$164). Actual fares are allowed to vary within 10 percent of the standard. The published fare between these destinations in September 1995 was ¥14,600 (\$146), a bit below the regulatory limit. A statistical analysis of published 1995 fares as a function of distance indicates a fixed-cost portion of ¥6,837 (\$68.37) and a variable-cost component of ¥21.15 (21 cents) per kilometer. This fare structure is a bit steeper per kilometer than the formula but less costly for fixed outlays, indicating that shorter distances are favored in the full-fare structure.<sup>5</sup> However, as will be discussed below, the published fares are not necessarily an indicator of the actual prices paid.

Prior to the airfare revisions scheduled to go into effect this April, several types of

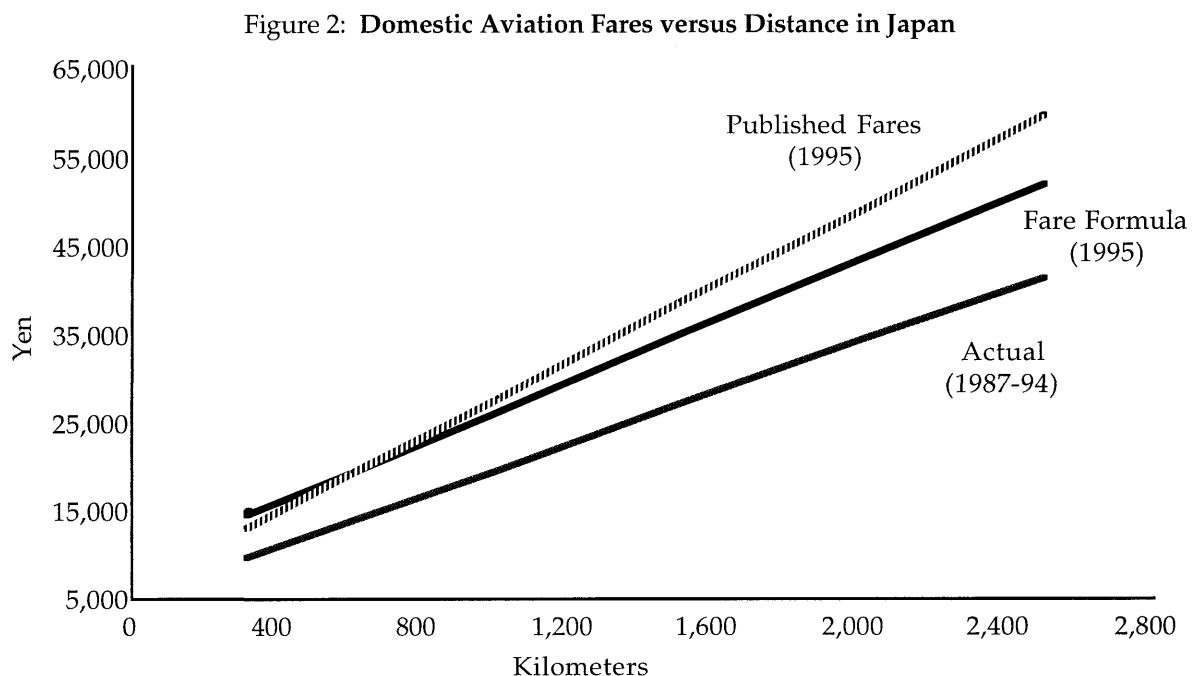
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<sup>5</sup>One possible reason for the lower fares for shorter distances is that a surcharge is included in the fare for jet aircraft; shorter flights tend to use turboprop aircraft for which no surcharge is levied.



discounts were available. These included a 10 percent reduction for round trips, 25 percent off for people over 65, a 25 percent discount for workers assigned to remote places and a 20 percent reduction for married couples whose combined ages were over the lucky number 88. Group fares available from travel agents provided much higher discounts and included travel, hotel and, often, sightseeing or skiing packages. These fares were the *tatema*e or public face of aviation pricing; the reality, however, was quite different.

ANA's annual report for the year ending March 31, 1995, illustrates the difference between the *tatema*e and the *honne* or reality of airfares. Early in the report ANA proudly observes that its discounted, four-week advance-purchase ticket for Tokyo-Osaka travel cost only ¥10,500 (\$105) or an average of ¥26 (26 cents) per kilometer, handily beating the Shinkansen bullet train fare of ¥14,430 (\$144). However, not even midway through the report, in describing its nationwide domestic passenger volume and revenues, the airline offers figures that, employing a bit of quick arithmetic, indicate average domestic yields of ¥20.4 per passenger-kilometer. This not only was



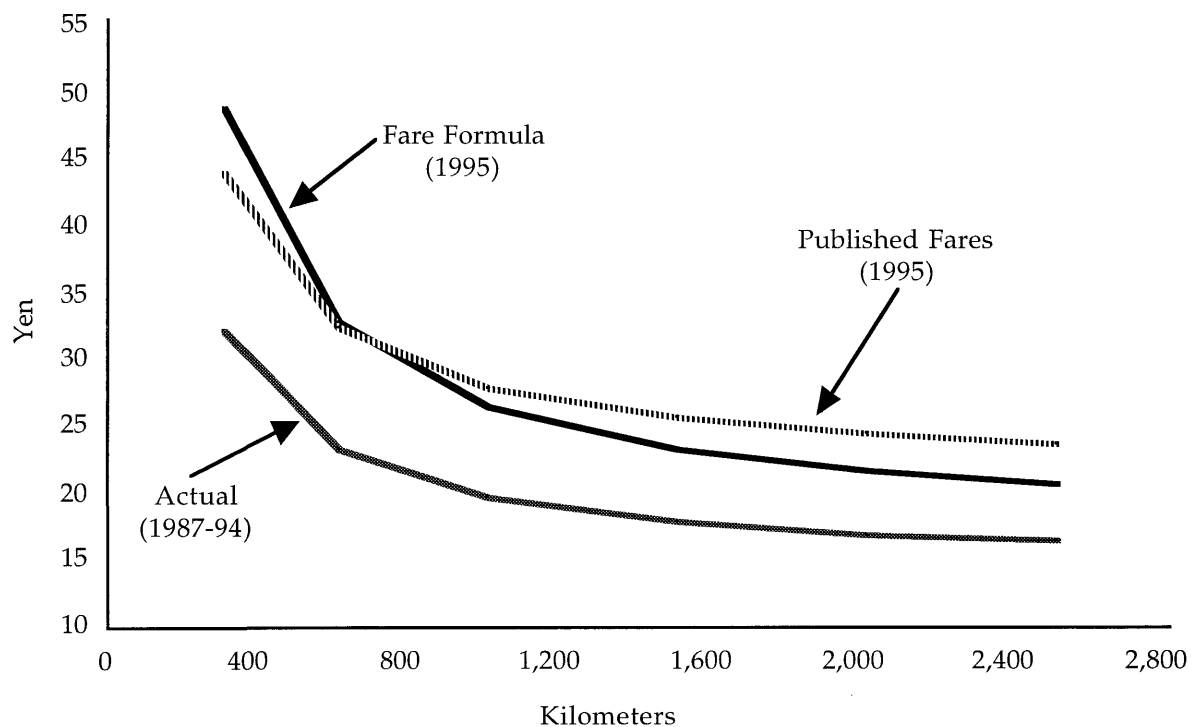
Source: Ministry of Transport and various corporate annual reports.

more than 20 percent below the touted discount fare to Osaka but also below the ballyhooed fares to

Hiroshima and Yamagata from Tokyo, which were ¥22.5 and ¥31.7 per kilometer respectively. Actual international revenues per passenger-kilometer were about half the domestic figure at ¥10.3. These numbers suggest that, if realized revenues from passenger business are significantly lower than even deeply discounted published fares, then Japanese airlines are not collecting the published fares. At the same time these numbers indicate that domestic carriers are offering deep discounts as a result of limited but effective competition.

The introduction of double and triple tracking on the most heavily traveled domestic routes in 1986 coincided with the use of wide-bodied aircraft. These planes had the capability to produce lower cost service — but only if they were filled with paying passengers. Japanese airlines sought to fill their seats by negotiating discounted tours with travel agents. Regulations allowed discounts

Figure 3: **Domestic Aviation Passenger Yields**  
(revenue in yen per passenger-kilometer)



Source: Ministry of Transport and various corporate annual reports.

of up to 50 percent on group package tours. However, travel agents were able to offer such attractive

prices that business and other customers could discard the hotel and any other parts of the package that they did not need just because the airfares were so advantageous. But that was only part of the story. Large travel agencies sold excess capacity that they had purchased in advance to smaller discount agencies, which, in turn, offered the group fares on an individual basis.

As competition heated up in the late 1980s, airlines offered rebates to travel agents that sold more than an agreed-upon number of discounted seats. While group-inclusive tour prices fell within the guidelines set by the relevant regulations, the rebates and the individual discounted tickets went outside the bounds. MOT, however, seemed unwilling to enforce strictly its formal fare regulations. One reason that MOT may have been reluctant to act was that Japan's Fair Trade Commission had become interested in cartel arrangements among the airlines. A former JAL managing director said in a JEI interview that around 1988, when ANA was offering discounts on several of its routes, he had called an ANA official to get together to discuss the discounting in order to avoid "excessive competition." The JAL executive was quite surprised about a week later to receive calls from the JFTC warning him about the penalties of collusion in setting prices. When he complained to MOT about this "meddling" from the JFTC and requested the Transport Ministry to get the antitrust watchdog off his back, MOT officials told him that there was nothing that they could do, that the JFTC was an independent body. Although JAL had higher costs than ANA, it was forced to compete with the discounted prices.

International airfares have been subject to even more strenuous competition than domestic ones since the 1980s. American carriers flying into Japan had experienced intense domestic competitive pressures following deregulation in the late 1970s. As their domestic costs and fares fell and their traffic expanded, they were able to take advantage of their ability to gather large numbers of passengers at their domestic hubs and offer low fares on their international routes. Japanese airlines, if they wanted to carry any passengers overseas, were forced to meet these fares. Fares on international routes generally are set by the lowest cost carrier flying between two countries — most often American, but Singapore Airlines and other airlines as well jockey for that position in Asia. Again, Japanese companies first competed through travel agents rather than offering lower fares directly to passengers.

By 1993 the discrepancies between published fares and the actual international fares available through travel agents were so large that Japanese airline executives and MOT officials decided that something had to be done to bring the figures into better alignment. A round-trip coach ticket between Tokyo and Los Angeles, for example, carried a list price of ¥294,000 (\$2,940) but was available from some travel agents for around ¥60,000 (\$600). One estimate indicated that up to 60 percent of tourists were paying lower amounts.<sup>6</sup> Japanese airlines wanted to get more of the business that was flowing to travel agents because they would not have to pay commissions and rebates if they dealt directly with customers. In addition, since smaller travel agents specializing in discount tickets were taking business away from larger, more conservative ones, major travel agents hoped that competitive, published fares would return their lost customers to them. MOT also was facing complaints that travelers from rural areas did not have access to discount travel agencies and were being forced to pay the outrageously higher regular fares. When new international fare rules went into effect April 1, 1994, authorized discount fares for individuals fell by 60 percent, "nearing current market prices," according to MOT officials.<sup>7</sup>

International tickets today have almost a commodity status, as illustrated by the fact that *Nihon Keizai Shimbun* reports bargain fares every Thursday. On March 14, 1996, for example, the economy round trip fare from Tokyo to New York was reported as ¥294,000 (\$2,940) and the standard excursion fare at ¥91,000 to ¥143,000 (\$910 to \$1,430). However, "bargain" one-month advance-purchase round-trip fares were listed at ¥82,000 to ¥90,000 (\$820 to \$900) from American carriers and ¥73,000 to ¥109,000 (\$730 to \$1,090) from Asian airlines.

Anecdotal reports and the single ANA description above of domestic passenger yields do not provide a clear picture of just how widespread the discount phenomenon may be nor of its course over time. From airline annual reports and official aviation statistics, though,<sup>8</sup> it is possible to

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<sup>6</sup>"System is sought to cut air fares, end discount war," *The Japan Times*, June 16, 1993.

<sup>7</sup>"New fare rules may hurt discounters," *The Japan Times*, February 23, 1994.

<sup>8</sup>Data on Japanese aviation were taken from Nihon Koku Kyokai (Japan Aviation Society), *Koku Tokei Yoran, 1994-95 (Aviation Statistics Survey, 1994-95)*. (Tokyo: 1996). Domestic and international revenues as well as revenues per passenger-kilometer, known in the industry as RPK, were available for 27 observations on individual airlines for selected years from 1987 to 1994. The statistical publication also provided annual data for the 1987-94 period by airline on RPK, separated for domestic and international passengers, but the data combine overall passenger revenues.

estimate average yields for both domestic and international service by using statistical regression techniques.<sup>9</sup> The estimates from such an equation closely follow the averages from the detailed data. Domestic yields over the 1987-94 period are estimated as ¥21.8 per kilometer and international yields as ¥11.3 per kilometer. Since the data span several years, a more informative estimate would adjust for inflation and for possible time trends.<sup>10</sup> An adjusted equation indicates that real yields for Japanese airlines have been falling since the mid-1980s by about ¥0.55 per kilometer per year for international fares and by ¥0.37 per kilometer a year for domestic service.

The standard fare formula published by MOT plus published fares for domestic routes and actual fare equivalents based on estimates from the 27 observations of airline yields calculated above are pictured in Figures 2 and 3. Figure 2 shows that the fixed-cost portion (the starting point on the vertical axis) as well as the variable, distance-related part of the fares (the slope of the line) are

lower for actual fares than the official ticket charges. Figure 3 divides the fares shown in Figure 2 by distance to get an average revenue per kilometer, or yield. At the industry's 1993 average distance of 800 to 900 kilometers the actual yield is around the ¥20 level that was estimated above. Doubling the trip length to the American average would bring down the actual yield by about 20 percent. Over shorter distances, however, the more severe penalties of higher costs are evident. Distances of 400 kilometers result in almost a 50 percent differential from the average trip length, according to these estimates. It should be noted, though, that the experience on which the curve of actual yields is based reflects only partial competition during the 1987-94 period. The curve could change if a more open situation were to emerge.

Ticket costs, revenue yields and the related trends can be compared to their counterparts in

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<sup>9</sup>Total revenues per total RPK is the dependent variable and the ratios of domestic and international passenger kilometers to total RPK are the independent variables. As a result:

$$Y = 0.113 I + 0.218 D;$$

$R^2(\text{adj.}) = 0.998$ ; t statistics for I and D are 30.6 and 118.5, respectively;  $n = 37$ , where  $Y$  = total revenues/total RPK;  $I = 100 \times \text{international RPK/total RPK}$ ;  $D = 100 \times \text{domestic RPK/total RPK}$ .

<sup>10</sup>To do this revenues were deflated by the consumer price index (1994=100); a time variable ( $t=0$  in 1980) was entered as a cross-product with both of the independent variables in order to determine if international and domestic yields changed at different rates. The result is:

$$Y94 = 0.163 I + 0.242 D - 0.0055 t \times I - 0.0037 t \times D;$$

$R^2(\text{adj.}) = 0.9985$ , t statistics are 11.5, 70.9, 4.1 and 9.7, respectively. Variables are defined as above, except Y94 is yield in 1994 prices.

the deregulated American market. In general, costs per RPK decline with route length. Thus, the long-distance route structure in the United States, which generates an average trip length of 1,000 miles (1,609 kilometers), or nearly twice the Japanese average of 508 miles (819 kilometers), helps to lower American costs.<sup>11</sup>

Further comparisons of costs and revenues involve questions about the appropriate yen-dollar conversion rate to use. While an exchange rate calculation is smart for a customer contemplating whether to purchase a ticket in yen from a Japanese carrier or a dollar-based ticket from an American company, exchange rate assessments are somewhat less useful in estimating relative efficiencies in the production of airline services. The reason is that exchange rates are determined partly by capital flows that have little to do with production efficiency. In this case a broadly based purchasing power parity figure may be more appropriate because it is based on comparable baskets of actual prices in both countries. However, since prices and airline efficiencies are likely to move at different rates from general price levels and efficiencies throughout the economy, an individual PPP for aviation would produce a more accurate comparison of airline efficiencies. Such a measure can be based on the observation that the average 1994 international yield of the Orient Airline Association (whose 17 members include ANA and JAL) was \$0.076/RPK.<sup>12</sup> This figure was slightly higher than the comparable American figure of \$0.071/RPK. If it is assumed that international fares are competitive, then the Japanese international yield, as measured in yen, should be equal to the competitive OAA dollar-based fare. This assumption implies a conversion rate of ¥139=\$1.00.

In Table 2 three conversion rates are used for comparison. The average exchange rate for the 1992-94 period was ¥106.6=\$1.00; the average purchasing power parity for these three years, calculated by the Organization for Economic Cooperation and Development, was ¥183 to the dollar; and the derived aviation exchange rate for the period was ¥139 to the dollar. The first thing to notice in Table 2 is that the 2-to-1 difference between domestic and international yields in Japan is not

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<sup>11</sup>The U.S. aviation statistics are taken from Air Transport Association, *The Annual Report of the U.S. Scheduled Airline Industry* (Washington, D.C.: 1995).

<sup>12</sup>OAA figures are from Orient Airlines Association, *Annual Statistical Report, 1994-1995* (Manila: 1995).

Table 2: Yields and Costs for Japanese and American Airlines, 1992-94

	Yields per RPK		Costs	
	<u>Domestic</u>	<u>International</u>	<u>Available Seat-Kilometers</u>	<u>Available Ton-Kilometers</u>
All Nippon Airways Co., Ltd.	¥21.3	¥10.5	¥13.1	¥99.7
Japan Airlines Co., Ltd.	¥19.6	¥10.7	¥12.1	¥77.3
Orient Air Association Members		\$0.076		\$0.490
American Carriers	\$0.0820	\$0.071	\$0.067	\$0.405
American Carriers at:				
Purchasing Power Parity (¥183)	¥15.0	¥12.9	¥12.2	¥74.1
Derived Aviation Rate (¥139)	¥11.4	¥9.8	¥9.3	¥56.3
Average 1992-94 Ex. Rate (¥106.6)	¥8.7	¥8.1	¥7.1	¥43.1

matched by the U.S. figures. U.S. domestic yields are only 16 percent higher than the international ones, mainly because of cost differences due to the longer distances of cross-border flights. In fact, domestic yields in the United States are considerably lower than their Japanese counterparts no matter what the conversion rate. In terms of yields the international figures tell a somewhat different story. At the exchange rates of recent years U.S. fares appear much lower than Japan's. This partly explains the fact that American carriers' share of Japan-U.S. passenger traffic has grown to twice Japanese airlines' share since the mid-1980s. Using a PPP conversion factor, however, U.S. international charges are somewhat higher than the Japanese figures. Purchasing power parity, though, overcorrects comparative prices because productivity in aviation does not move at the same rate as overall productivity.

The suggestion in Table 2 that U.S. international fares and costs are lower than those in Japan is supported even by JAL chairman Susumu Yamaji who was quoted in 1993, for example, as saying about transpacific routes: "We cannot make any profit because the fare is not enough to cover the costs to Japan Airlines."<sup>13</sup> According to the *Far Eastern Economic Review* that same year, "For Northwest and United [Airlines], the regulated overseas routes [to and from Japan] are vital to shore up earnings. Japan Airlines is losing money on Pacific routes."<sup>14</sup>

Since that time JAL has abandoned several of its transpacific routes. In JEI interviews with current and former Japanese company officials the unanimous conclusion was that both JAL and

<sup>13</sup>"Japan Airlines Chairman Calls U.S. Rivals Unfair," *The New York Times*, May 26, 1993.

<sup>14</sup>"Dogfight Over Asia," *Far Eastern Economic Review*, March 11, 1993, p. 40.

ANA are losing money on many of their international routes. The reasons are mixed, but the strong yen is considered a major culprit. The pressure of international competition has forced Japanese carriers to attend to their costs, especially on foreign routes. For example, JAL has hired part-time foreign flight attendants and foreign cockpit crews at wages that are a small fraction of personnel costs in Japan.

As difficult as yields are to compare, cost comparisons are even more problematic. Not only are the same exchange rate complexities present, but factors like depreciation cloud the issue as well. Depreciation depends on such variables as a nation's tax laws and the age of a company's aircraft fleet. Also, the subcontracting to subsidiaries of functions like maintenance or catering can distort the distribution of costs. Nevertheless, an analysis of American and Japanese costs shows that they both are quite close to yields. This results from the simple fact that profit margins rarely deviate from the range of plus or minus 6 percent. Therefore, if Japanese carriers' domestic yields are ¥20 per RPK, costs will be within the range of ¥19 to ¥21. The decline in domestic yields over time probably reflects corresponding declines in the real costs of Japanese air transport. On the basis of this logic U.S. domestic costs are at least 30 percent lower than the comparable number in Japan.

Against the cautions about the comparability of costs, two common measures — available seat-kilometers and available ton-kilometers — shed light on airline costs. These measures calculate the expense of providing a passenger seat or a ton of capacity (which also includes cargo), whether or not it is used. Table 2 offers estimates of these costs comparisons using the three different conversion rates. The figures suggest that U.S. costs are perhaps 5 percent to 30 percent below Japanese costs. Anecdotal information is consistent with the wider differential.

Yield and cost analyses suggest that domestic yields follow costs, but that international yields of the Japanese carriers are more the result of competitive pressures. Even though domestic yields in Japan are twice their international counterparts, they still have declined over time, indicating real gains in productivity. From the equation described in footnote 10, real domestic yields (adjusted by the consumer price index) in recent years have declined by roughly 1.8 percent



annually. International yields have fallen by a price-adjusted 5.2 percent per year. For comparison, real U.S. domestic yields dropped 3.2 percent annually between 1980 and 1994, while the international figure declined at a 2.5 percent rate. The cross-country differences are consistent with the argument of less competitive pressure in Japan's domestic air services market than in its deregulated American counterpart. The slower U.S. decline in the international sector probably resulted from lower American fares at the start of the period.

## **The Grand Kabuki Of Regulated Fares**

The overall picture of yields in Japan is significantly different from the one portrayed by a cursory reading of the regulations. The international fares charged by Japanese carriers seem to be fairly competitive with other international airlines. Domestic airfares, while higher than this country's fully deregulated fares, are still only a fraction of the published tariffs. By plugging into the fare-distance formula estimated above ANA's 1994 tally of domestic passengers carried and its RPK, the resulting estimates indicate full-fare revenues would have been 40 percent more than those that actually were collected. Approximately 30 percent of Japanese passengers purchase full-fare tickets when they arrive at the airport, and many others also buy full-fare or business-class tickets. This suggests that some 50 percent of Japanese passengers may be paying full fares, while the other half are receiving discounts that average at least 50 percent. This is a far cry from a tightly controlled market, even if that is not wholly transparent.

Who is the audience for this Kabuki play over prices? Even though roughly half of all Japanese passengers pay discounted fares, there is much official and popular comment about the published tariffs. Interviews by JEI yielded a mix of motives for not acknowledging openly what is commonly known. Most airline officials and regulators said that Japanese consumers exhibit inconsistent preferences in terms of wanting low prices and wanting equity. Transportation economics professor Ushio Chujo of Keio University noted that Japanese passengers behave as economists predict when confronted with low fares, but politically they demand equality in fare structures. The fairness issue stimulates Diet members to push strongly for better fares for their communities.

An ANA official noted, however, a sharp change in consumer awareness of pricing issues over the past 10 years, partly sparked by exposure to low overseas air prices. A Transport Ministry official who works in the domestic aviation area mentioned with frustration that Tokyo-to-Sapporo customers are demanding low prices, but they also resent paying more than someone in the adjoining seat who has a larger discount because the ticket was bought four weeks in advance. This is a problem not unheard of in the United States. One of the effects of U.S. airline deregulation, in fact, has been an increased variance of prices paid by passengers. Each seat can be thought of as a different commodity, depending, for example, on how far in advance it is bought, the period of travel, the density of passengers on the route or its connections to other points in an airline's network. These sources of differentiation also have allowed American carriers to vary prices to maximize profits. In Japan the search for bargains together with the regulatory system's attempt at "fairness" adds complexity to ticket pricing. Through the fiction of the published fare Japan's regulators help to satisfy the inconsistent demands of low fares and equity over political constituencies, if not distance.

Another source of the Kabuki regarding fares is that airlines compete with long-distance railroads, both of which fall under the jurisdiction of MOT. Greater rigidity in rail fares and higher costs on many thinly used routes restrict trains' competitiveness vis-a-vis airlines. Many of the Shinkansen lines also have a special political heritage. Since the main bullet train lines subsidize many local lines and even some unprofitable Shinkansen routes, liberalization of railroad fares would play havoc with local transportation and, therefore, local politics. Reluctant to upset political and transportation arrangements, MOT officials shy away from granting the greater transparency that could force these lines into more open competition and, possibly as a consequence, potential bankruptcy. However, popular demand for an end to cross subsidies is providing a motivating force behind the Transport Ministry's goal of further aviation liberalization.

## **Future Possibilities For Deregulation**

Widespread inconsistency between published and actual fares on domestic flights has

played a major role in the current phase of price liberalization. After the new Kansai International Airport opened in Osaka in 1994, for example, MOT officials were reported to be “dismayed” that the additional capacity was causing ticket prices to drop by as much as 40 percent; falling prices, they said, threatened the fare system that the ministry was trying to maintain.

Another factor influencing both public and corporate policymakers was the discrepancy between foreign and domestic airfares. Leisure travelers make up some 60 percent of the flying public in Japan, and they tend to be highly responsive to price in choosing their holiday destinations. As the fares for Guam, Saipan or Honolulu fell in relation to those for Okinawa, for example, the domestic travel industry faced empty hotel rooms and lost business. Ski tour operators in Sapporo complained that they were losing skiers to the Canadian northwest. Japan’s travel industry in particular has sought lower domestic fares to strengthen its own business. Perhaps the most important factor in the current round of open fare liberalization, however, is the recognition by Transport Ministry officials and airline company executives that domestic sentiment and international examples had made deregulation an unstoppable trend, one that they needed to acknowledge openly in order to prepare for it.

The new fare structure set to go into effect in April is based on the notion of standardized costs — just like all pricing schemes since 1970. Published fares now can be up to 25 percent below the standard, which will act as a price cap. Not a lot of normal fare changes can be expected because, even if a carrier reduces its fares by the maximum 25 percent, the results still would be considerably above the average fare actually paid under the old system. The new approach allows a much broader and deeper set of discounts, however, including time-of-day and time-of-year discounting, advanced purchase discounts and group discounts. Individuals will be able to receive discounts of up to 50 percent directly from airlines, but they also can expect to pay the maximum fare during Golden Week (which extends from late April through early May) and other peak periods.

MOT officials are fond of pointing out that published fares in Japan are lower than full fares in the United States. In fact, some American passengers actually pay higher prices than

published fares in Japan. Usually left unsaid by these bureaucrats, however, is that more than 90 percent of American travelers buy lower price tickets at an average discount of 65 percent but ranging as high as 90 percent. The advantage of maintaining high published fares is that it gives more flexibility to peak-period pricing. What American airlines have learned is that, if every seat is sold on a holiday, it could mean that prices are not high enough to regulate demand. This explanation helps resolve the surprise in Japan that published prices under the more flexible scheme scheduled for implementation in April actually average about the same or slightly higher than under the old scheme.

The elimination of cross-subsidization, also seen after aviation deregulation in the United States, now is being observed in Japan, as carriers increase published fares for their subsidized routes. Newspaper reports on these changes have focused only on the unweighted average of published fares, not calculating the number of passengers affected or the greater possibility of discounts. At a 40 percent discount an advance-sale ticket from Tokyo to Sapporo (820 kilometers), for example, will be ¥14,040 (\$140) for an average yield of ¥17.1 per kilometer. This is well below the average, systemwide yield now being collected and is in line with America's experience of falling fares on denser, long-distance flights and costlier fares on short, thinly traveled routes.

Even though Japanese airlines have been offering discounts for the last 10 years, they have not been able to structure their fares in a way calculated to maximize profits — yield management, as it is called in the United States. American carriers review flights weeks or months in advance and offer or withdraw discounts on a daily basis depending on capacity utilization on individual flights. Yield management of this nature requires refined software to collect and analyze data and a ticketing system that offers pricing flexibility. It also requires airlines to know the price elasticities of demand. Japanese carriers' representatives say that they have none of the infrastructure that allows them to practice yield management of this sophistication; they expect, though, that their experience over the next year with more flexible pricing and new software will prepare them to enter the modern pricing game.

While much liberalization and improved productivity can be accomplished in the current

atmosphere, the major missing ingredient for Japanese air transport deregulation remains freedom of entry. Even though the routes flown by most passengers are served by two or three competing carriers, the innovation and the competitive pressures introduced by freer entry are missing. The clearest indication of this is the fact that Japanese airlines' yields in the relatively freewheeling international market are half the domestic rate. A monopoly also is conducive to coercive practices. ANA, for example, recently admitted that its Niigata bureau pressured local travel agents into not selling tickets for JAL flights to Hawaii by threatening that ANA would withhold seats for the popular Niigata-Sapporo route, over which it has a monopoly.<sup>15</sup>

Every airline industry observer points to capacity constraints at Tokyo and Osaka airports as the limiting factor in providing wider market entry. Since 70 percent to 80 percent of all air passengers in Japan now pass through one of these terminals and since these airports are being used at full capacity, the authorization of new carriers would not increase passenger traffic. Completion of new runways at Haneda and Narita airports in Tokyo and the 1994 opening of the Kansai airport in Osaka will reduce the congestion somewhat, but severe excess demand will continue to exist.

One problem with this analysis is that it does not look beyond the status quo. Most people fly through these hubs because they live in the surrounding region, and that fact is unlikely to change. But airports in Tokyo and Osaka also are overburdened because airlines have chosen to build their route structures around these facilities. Little thought has been given to the development of alternative hubs or to the use of former military facilities to decrease congestion in Tokyo and Osaka. Nagoya, for example, now serves 30 international destinations and 26 domestic cities. Flights originating in Fukuoka go to 21 foreign cities and 30 in Japan. New entrants possibly could develop these regional hubs into major competitors to Tokyo and Osaka. New entrants in the United States developed alternative hubs in Newark, New Jersey (for the New York City area), Baltimore, Maryland (for the Washington, D.C. area) and Long Beach and Orange County (for Los Angeles, California). ValuJet, a new low-cost airline, is even drawing customers 70 miles from Denver to Colorado Springs, Colorado. Cargo carriers similarly have established hubs in Memphis, Tennessee and Cincinnati, Ohio. Of course, the geography of Japan is different, but, if conventional thinking is limited to the status quo, the current constraints will continue unabated.

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<sup>15</sup>"ANA Admits to Coercion," *The Japan Times*, March 15, 1996.

New entrants with unconventional ideas could help to break this deadlock. That this is not an idle thought for Japan is illustrated by a freight carrier, Luxembourg-based Cargolux, which shifted its gateway from Fukuoka to Komatsu, a former military airport. Although the company operates only a few flights a week, the change resulted in 50 percent less trucking time for international freight to major industrial areas.<sup>16</sup>

Transport Ministry officials also acknowledge certain bureaucratic barriers to new entry. MOT officials would feel personally responsible, they say, if a carrier that entered the Japanese market subsequently went bankrupt or suffered a crash; officials do not wish to expose themselves or the industry to such risks or to what in Japan often is called “chaos” or “confusion.” Such attitudes reveal a profound mistrust of markets fending for themselves without ministerial responsibility, as these same bureaucrats concede. They grant that their own attitudes may be impediments to change.

As for the auctioning of slots at congested airports, ministry officials as well as transportation economists acknowledge that auctions could increase economic efficiency by allocating supply to those willing to pay the most for access. But they also note that auctions would neither reduce fare prices — and may boost them — nor increase the number of passengers able to move through the congested terminals. Another fear regarding auctions is that the most powerful incumbent would buy the available slots and create a monopoly. Auctions, however, could be devised that place limits on the total number of slots acquired by any one participant.

Although new entrants at congested airports might not be able to increase airport capacity, they could compete through more efficient operations. As one example of how significant efficiencies can be gained, Southwest Airlines, which offers only unreserved seats as a way of cutting costs and encouraging passengers to be early for flights, is accomplishing aircraft turnarounds in 15 minutes on its West Coast shuttle between Los Angeles and San Francisco. The incumbent carrier, United Airlines, has been forced to match these efficiencies and has brought its own shuttle turnarounds down to 20 minutes. In contrast, JAL typically has a 55-minute aircraft turnaround time on domestic flights and ANA a little less.

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<sup>16</sup>“New Cargo Gateway,” *Aviation Week & Space Technology*, September 5, 1994, p. 31.

Industry observers also suggest that the congested airports themselves could be made more efficient. Narita, the nation's busiest international hub, is handling 380 aircraft movements during 17 hours of daily operation, the equivalent of one landing or takeoff every 2 minutes and 40 seconds. According to experts, that load is not heavy by international standards but is 20 more than nominal Japanese air traffic control permits.<sup>17</sup>

As to future trends, both government and industry insiders see deregulation as unstoppable. An ANA executive interviewed by JEI said that the airline's strategy is to become more efficient while competing — not to get more efficient and then compete, as some other companies would prefer. A motivating factor in ANA's expansion into international markets was to get the benefit of working on competitive, low-cost routes. Although ANA was not making a profit on these international routes, the company was using the experience as a laboratory for learning efficiency. ANA's costs, this same official said, came down 14 percent from 1990 to 1995, and overhead was cut by 30 percent. ANA's principal strategy, so far, for reducing costs is to grow into its capacity rather than to reduce staff, the airline official stated. JAL, in contrast, is cutting employment, reducing salaries by hiring foreign personnel, establishing maintenance centers in low-cost areas like the People's Republic of China and cutting executive pay. A former JAL managing director said that executive salaries had been reduced by 30 percent from 1991 to 1995 and bonuses had been eliminated.

Although incumbent Japanese airlines are taking serious measures to cut costs and become more efficient operators, some observers question whether more than marginal change can occur without new entrants. They cite the U.S. experience in suggesting that new companies were the instigators of the more radical ideas that have transformed the American industry. Many of these ideas failed, and the industry is littered with the corporate corpses of bankrupt carriers. Nonetheless, both the successful and the unsuccessful entrants have served as vehicles for major change.

Entrants do not even have to be new creations. In the United States some carriers have

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<sup>17</sup>"Japan Eyes \$40 Billion in Airport Projects," *Aviation Week & Space Technology*, July 17, 1995, p. 34.

moved from a regional niche to a national market. Competition from airlines with a detailed technical knowledge of aviation operations — be they local or international in origin — opens the industry to the transfer of new ideas to a broader landscape. Japan has several carriers operating at a regional level that could form the foundation for additional competition on the national scene. Numerous international airlines similarly would like such a chance. Whether this possibility is permitted by law, regulation, policy or bilateral accords is a question for the future.

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The views expressed in this report are those of the author and do not  
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